



High resolution, book format.

Deconstruction

Patek Philippe

Perpetual calendar, moonphase,
minute-repeater, full hunter pocket watch

(Circa 1880)

Edition 2
Including additional text and images.

by

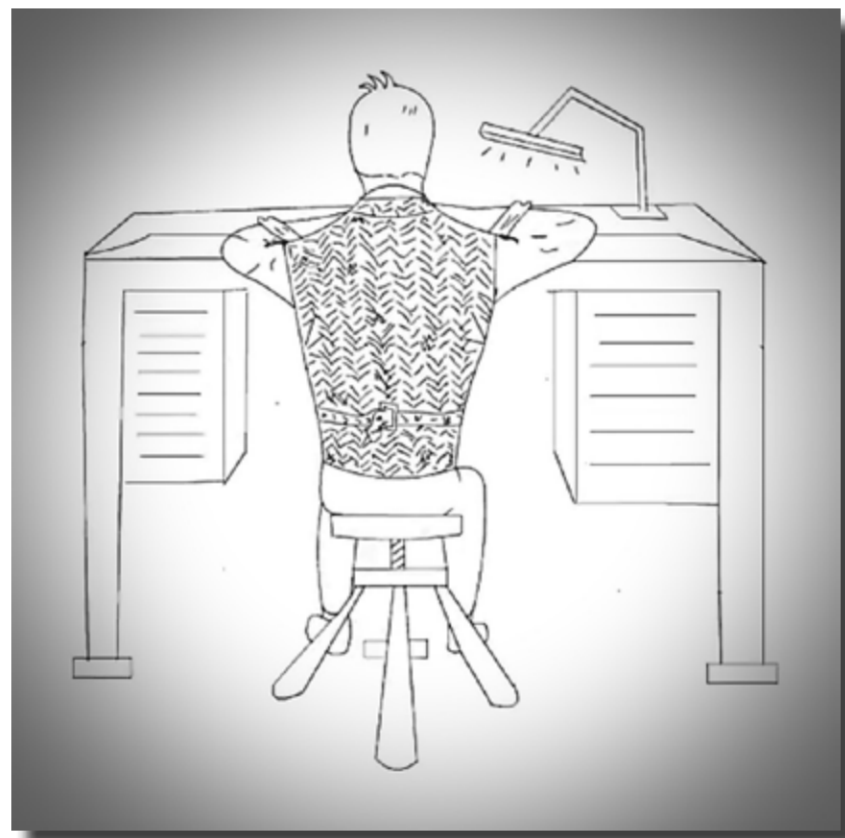
THE NAKED WATCHMAKER

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Edition 02

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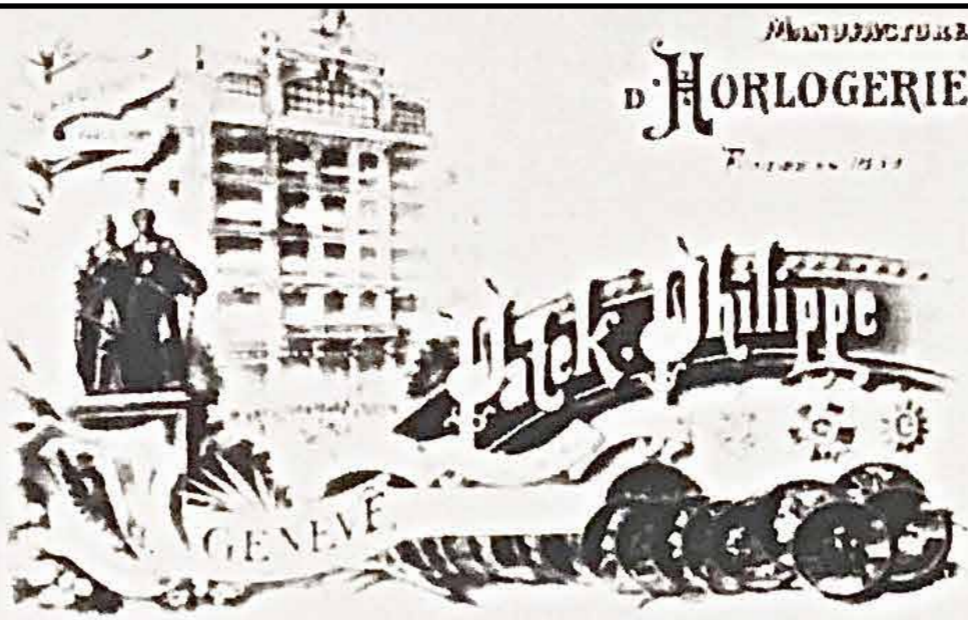
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The Naked Watchmaker.

Patek Philippe & Co.

Is a Swiss watch manufacturer located in Geneva and the Vallee de Joux. Polish watchmaker Antoni Patek started making pocket watches in 1839 in Geneva, with his fellow Czech partner Franciszek Czapek. They separated in 1844, in 1845 Patek joined with the French watchmaker Adrien Philippe.

Patek Philippe & Co was founded in 1851.



Extract from the Archives

Type of watch : *Pocket watch*
Movement No : *48.389*
Calibre : *20''' , minute repeater, triple perpetual calendar, moon phases*

Case No : *48.389*
Style : *Hunter case, "pomme et filet", 18K yellow gold*
Type of dial : *Not mentioned*

Date of manufacture : *1880*
Date of sale : *April 19th, 1881*
Bracelet/Leather strap : *---*
Remark : *---*

Only the data registered in our books which is relative to the watch with movement and case numbers indicated above, is mentioned in this statement. We do not take position regarding the authenticity of the watch in its current condition, or its components or the materials used.

A handwritten signature in black ink, appearing to be 'Th. S.', is written over a faint circular stamp.

PRESIDENT
PATEK PHILIPPE S.A.

Geneva, August 9th, 2011

A copy of an extract from the Patek Philippe archives proving the originality of the watch shown in the book, the date of manufacturer and eventual original sale date.

Introduction

A classically executed minute repeater with brass, gilded bridges combined with a separate German silver perpetual calendar module set into the base movement, and 5 piece enamel dial. The day is operated independently of the rest of the QP linked together via the upper pinion on the hour wheel.

This full hunter, 18k yellow gold pocket watch with enamel dial, perpetual calendar, moon phases and minute repeater was made in 1880 and sold for the first time on April 19th 1881. The calibre measures 20 ligne, approximately 45mm in diameter. (One French ligne=2.25583mm, roughly 2¼ mm).

The movement number is stamped on to the mainplate 48389. The style of design with separate bars for each wheel was synonymous with both French and Swiss watchmaking as it developed, and differentiated from English, German and American movements, which had the majority of wheels covered by a single bridge or plate.

Summary

The repeater calibre was most likely made by a third party and purchased by Patek with the specific modifications requested to add the calendar mechanism. The enamel dial may have originally held the brand name on the lower section of the dial covering the moonphases disc.

The watch has been well used during its life. On removing the winding crown, the winding crown tube is visibly worn through contact with the crown, and the bow for the chain's hook also shows wear. These are normal signs of a watch of this age which has been used.

As with all watches of this age they were never water resistant and there are signs of corrosion on the steel work.

The watch represents the marriage of the third party calibre with a perpetual calendar module. As the brand evolved the majority of the calibres were made in house.

Minute Repeater

A minute repeater is a complication in a mechanical watch that audibly chimes the hours, quarters and minutes on demand. ie, in this example through a slider being activated, on the side of the case. Once activated a mainspring is wound which activates a series of racks and cams causing two hammers to strike two gongs to sound the time. They originated prior to artificial illumination, to allow the time to be determined in the dark.

Perpetual Calendar

A perpetual calendar, often referred to as a QP, (the French translation, Quantième Perpetual). Describes a mechanical calendar mechanism that corrects the different lengths of each month as well as February on the leap year.

Moon phases

The moon phase wheel follows the progression of the moon through its different phases leading to the full moon.

PATEK, PHILIPPE & C^{IE}
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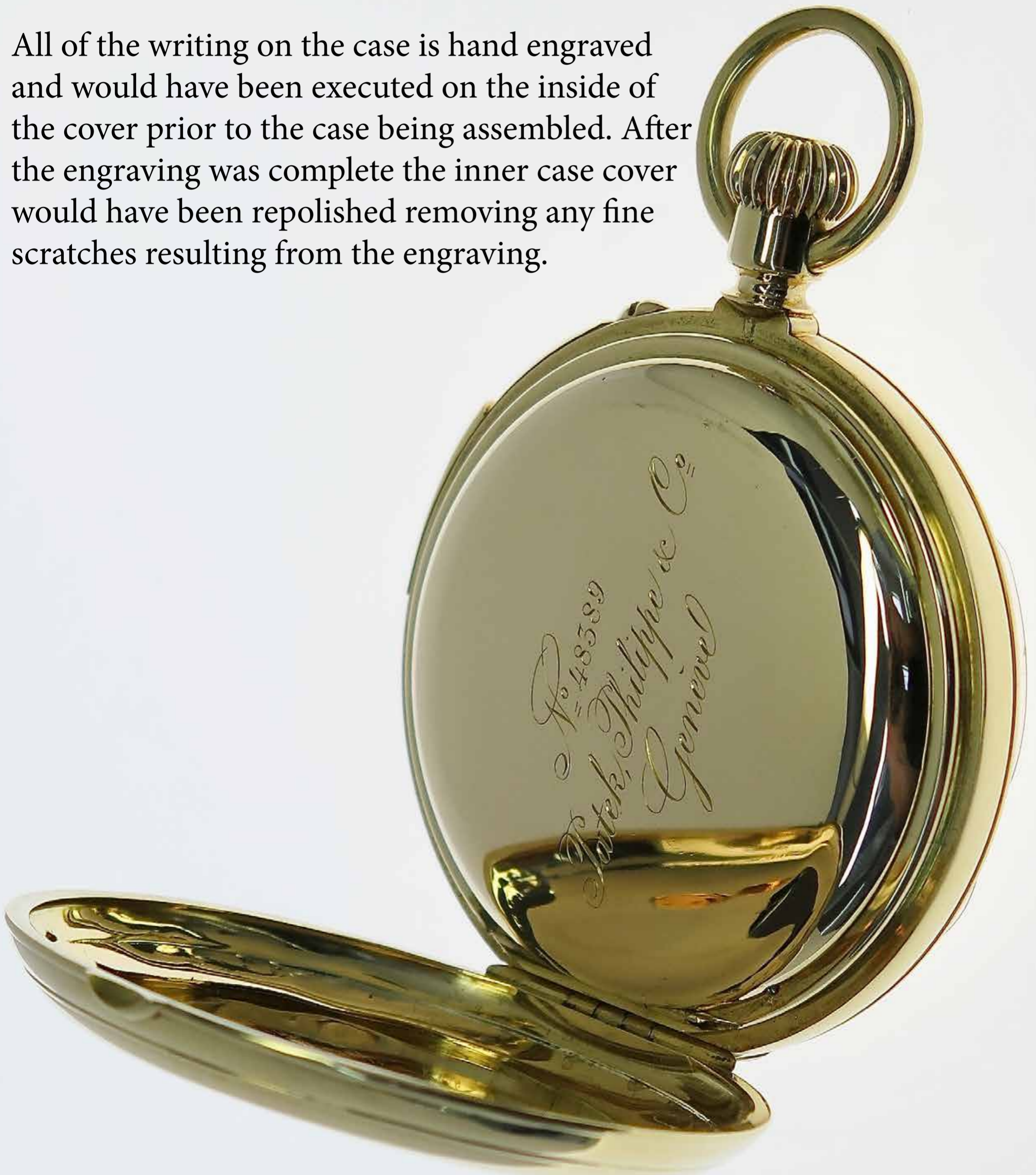


This is a full hunter-case pocket watch which has a spring loaded-hinged circular metal cover, covering the watch-dial and glass. The name originates from England where the sport of fox hunting was a commonplace practice at the time of their origin, and these watches were commonly used by the hunters. The majority of antique and vintage hunter-case watches have the hinged covers at the 9 o'clock position and the stem, crown and bow of the watch at the 3 o'clock position as with this example.



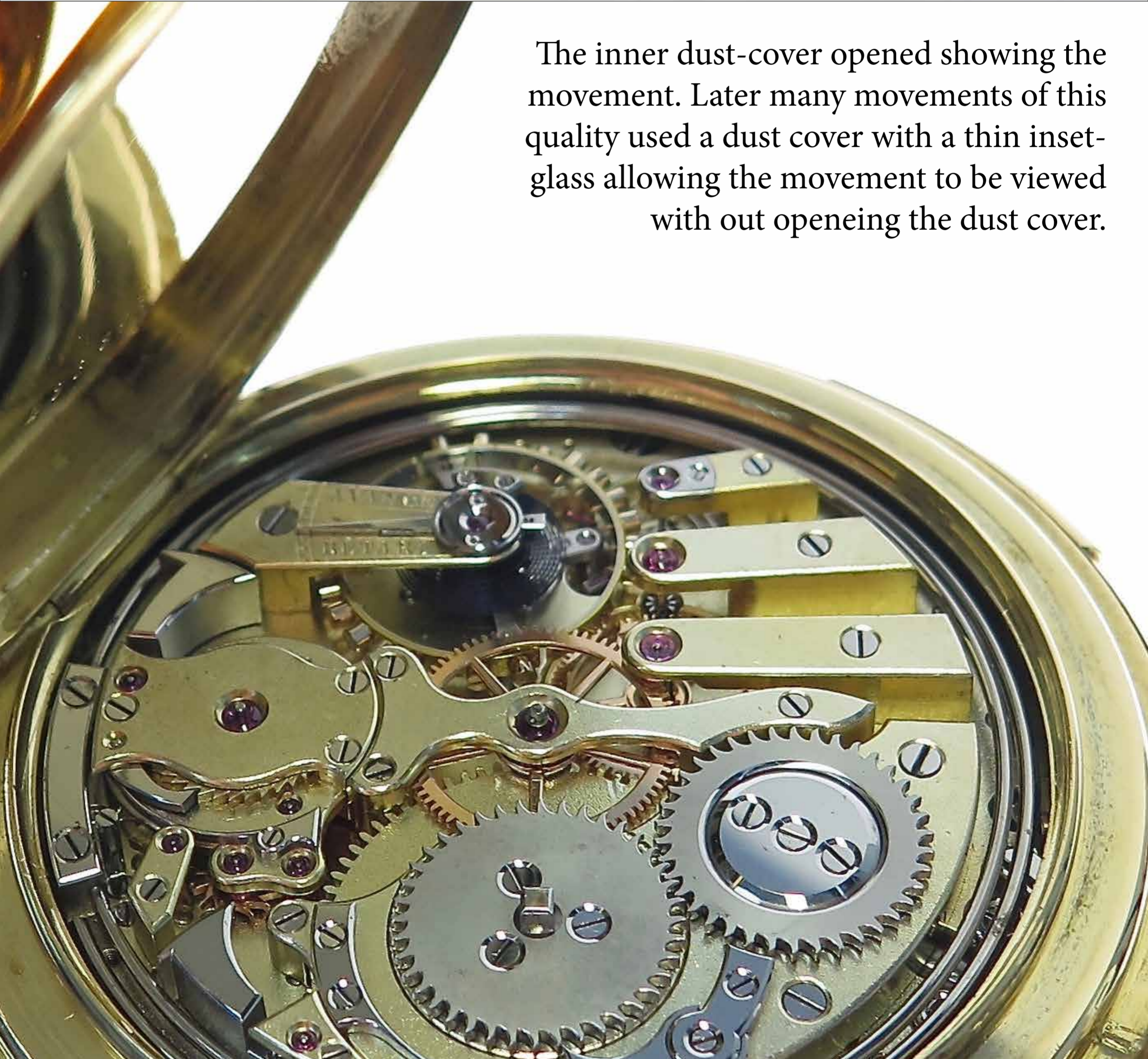


All of the writing on the case is hand engraved and would have been executed on the inside of the cover prior to the case being assembled. After the engraving was complete the inner case cover would have been repolished removing any fine scratches resulting from the engraving.





Above, from left to right; the winding crown inside the bow, the pusher allowing the hands to be set by the crown and the slider to activate the repeater mechanism.

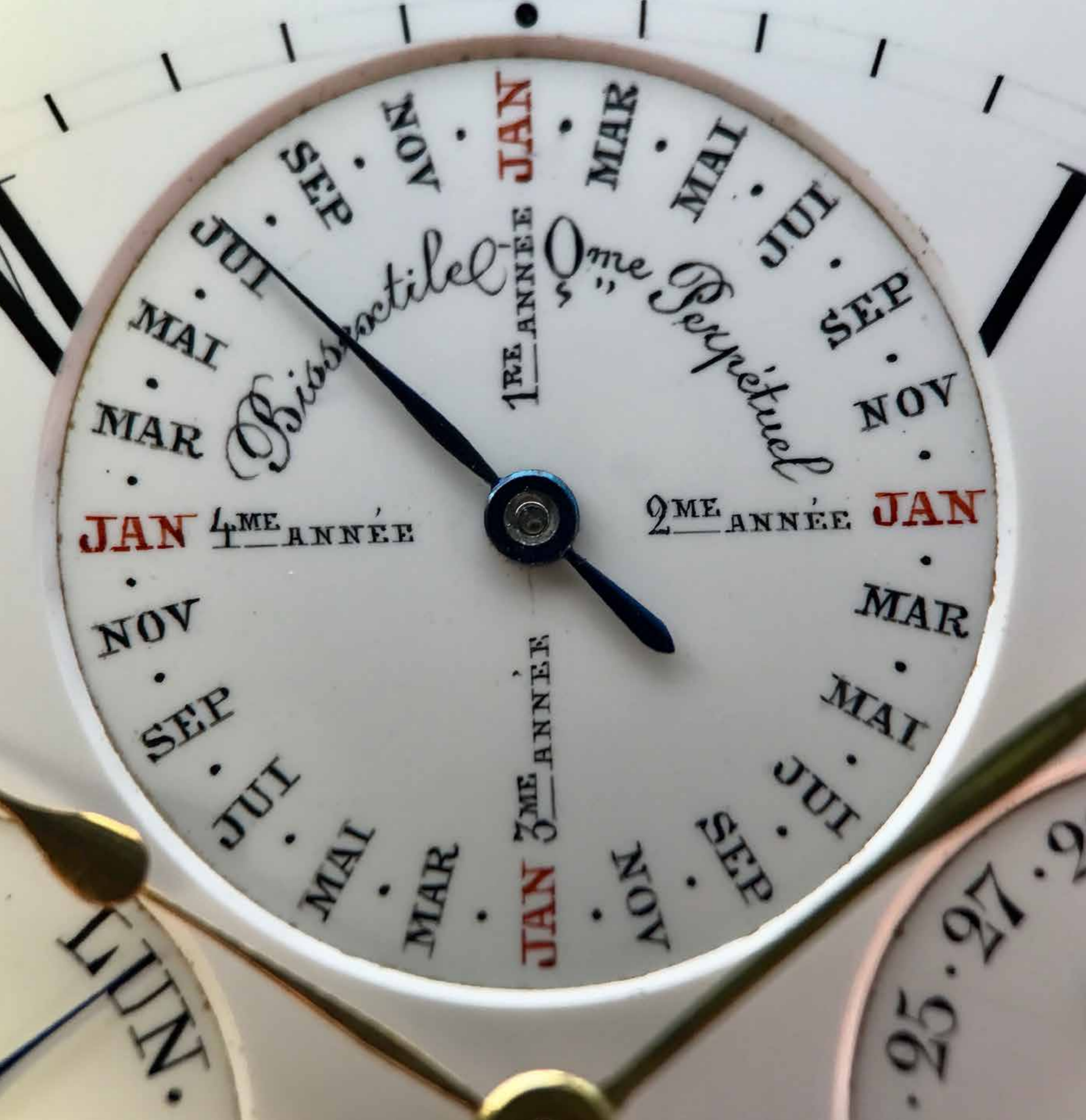


The inner dust-cover opened showing the movement. Later many movements of this quality used a dust cover with a thin inset-glass allowing the movement to be viewed with out opening the dust cover.





The layout for the perpetual calendar is classical and has been repeated countless times during watchmaking history, for both design and technical reasons. The months set at 12 o'clock, the day at 9 and date at 3 o'clock. The moon phases disc set at 6 o'clock with the seconds passing through the centre.



Each quadrant contains one full year. For readability, dots replace written months between the mostly abbreviated names. The fourth year has 'Bissextile' written, 'Leap year' in French. The JAN's are painted in red enamel to break up the four divisions and also increase readability of the months. From the inconsistency between the months, it would appear that the black enamelling was painted by hand.



The gold moon phases wheel with blue enamel, and hand engraved texture. The punched “dot” at 9 o'clock was for aligning the wheel to a specific datum point when it was first assembled on the module prior to the dial being added.

The hands and bezel removed from the watch showing the skirt around the dial which clipped onto the mainplate. Cut-outs in the skirt allowed the correctors for the calendar mechanism to protrude out and then through the bezel.

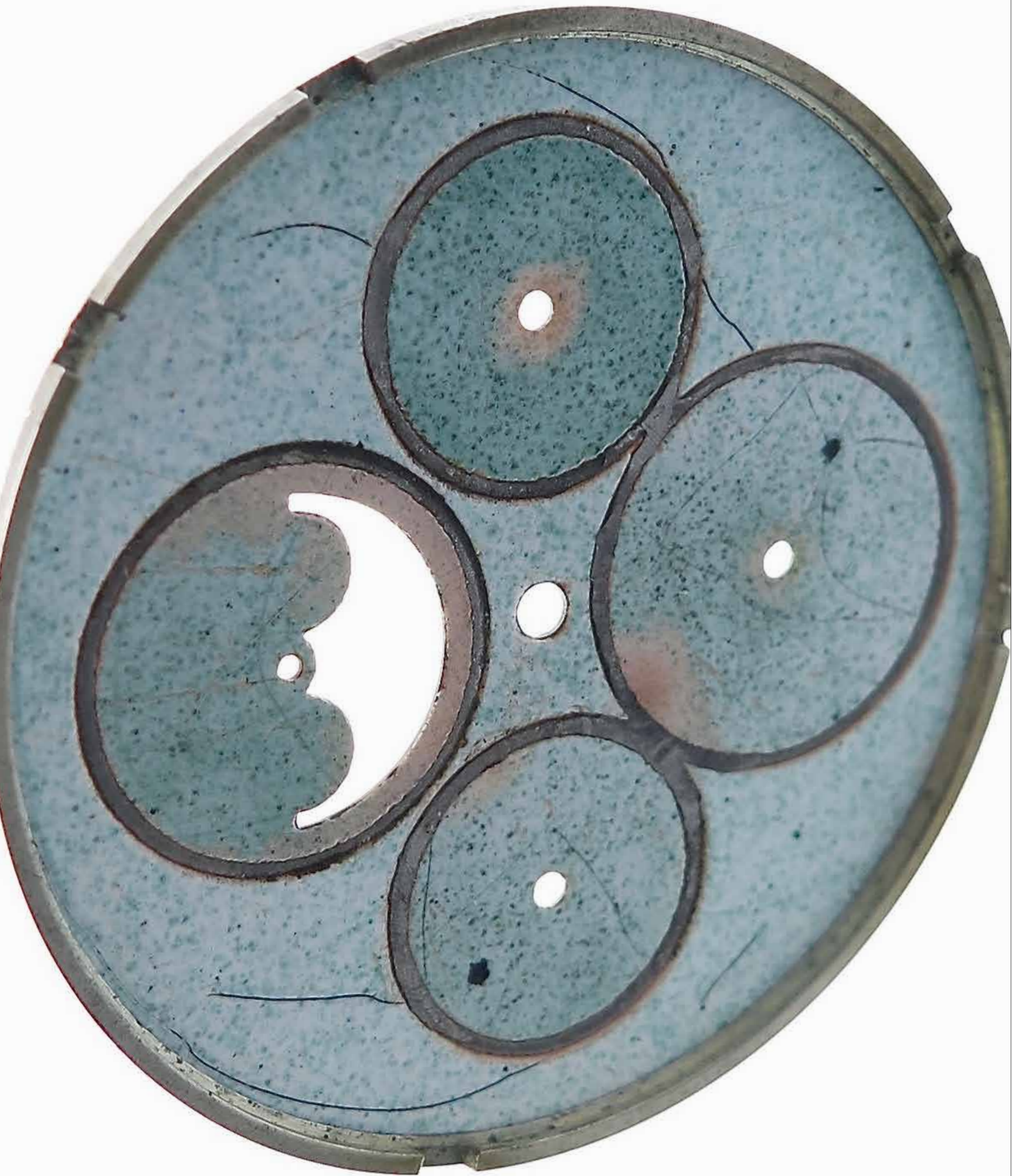




The large rectangular steel clip holds the outer case cover closed. When the crown is pushed the steel clip moves centrally releasing the cover and allowing the time and date to be viewed.



The dial removed from the case and movement. The fine, hair line fractures in the subsidiary dials are probably the result of the subsidiary hands being removed at somepoint during the watches life.



The subsidiary enamel dials are secured in place by melted lead, the surface was then cut away. The base metal of the dial was copper and the dial was enameled on both sides to even-out the tensions within the dial.

The dial removed revealing the calendar module with the four correctors clearly visible. At 1 o'clock correcting the months, 3 o'clock the date, 4 o'clock the moon phases, 9 o'clock the days.





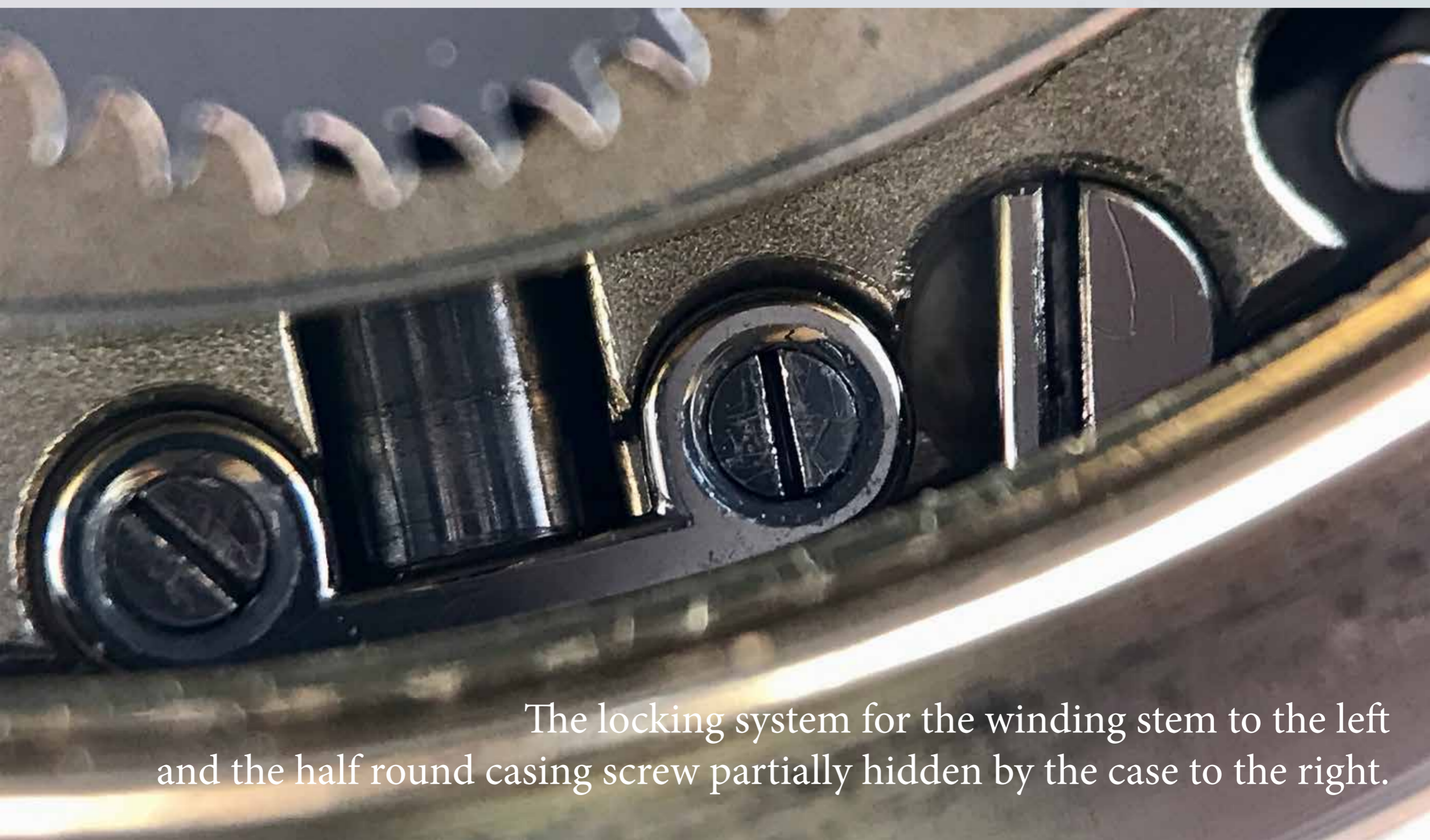
The bridge side of the movement once removed from the case. The repeater sits built into the movement. The calendar mechanism is modular but still sits flush into the movement mainplate.



The setting/winding mechanism, all originally finished and assembled by hand.

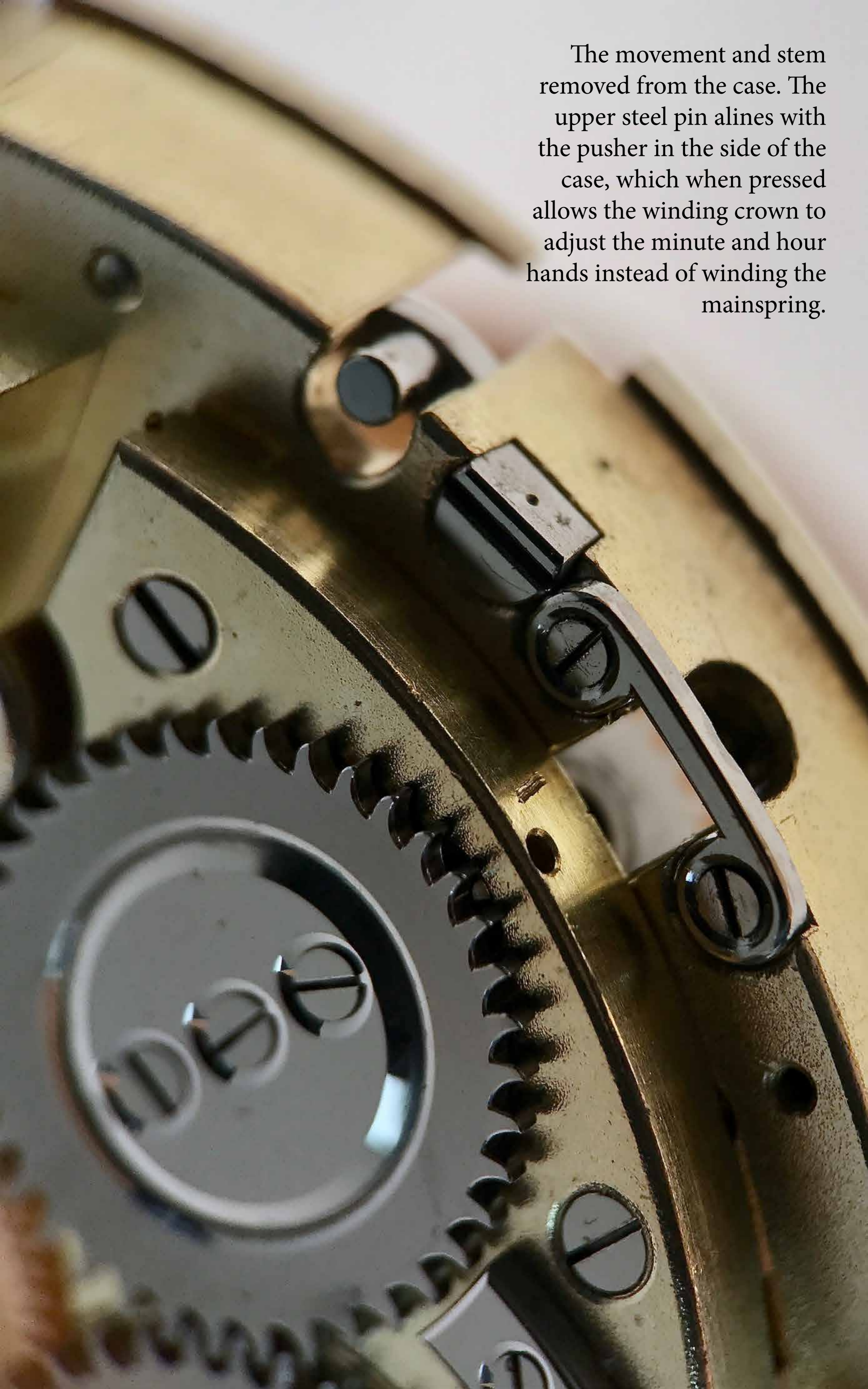


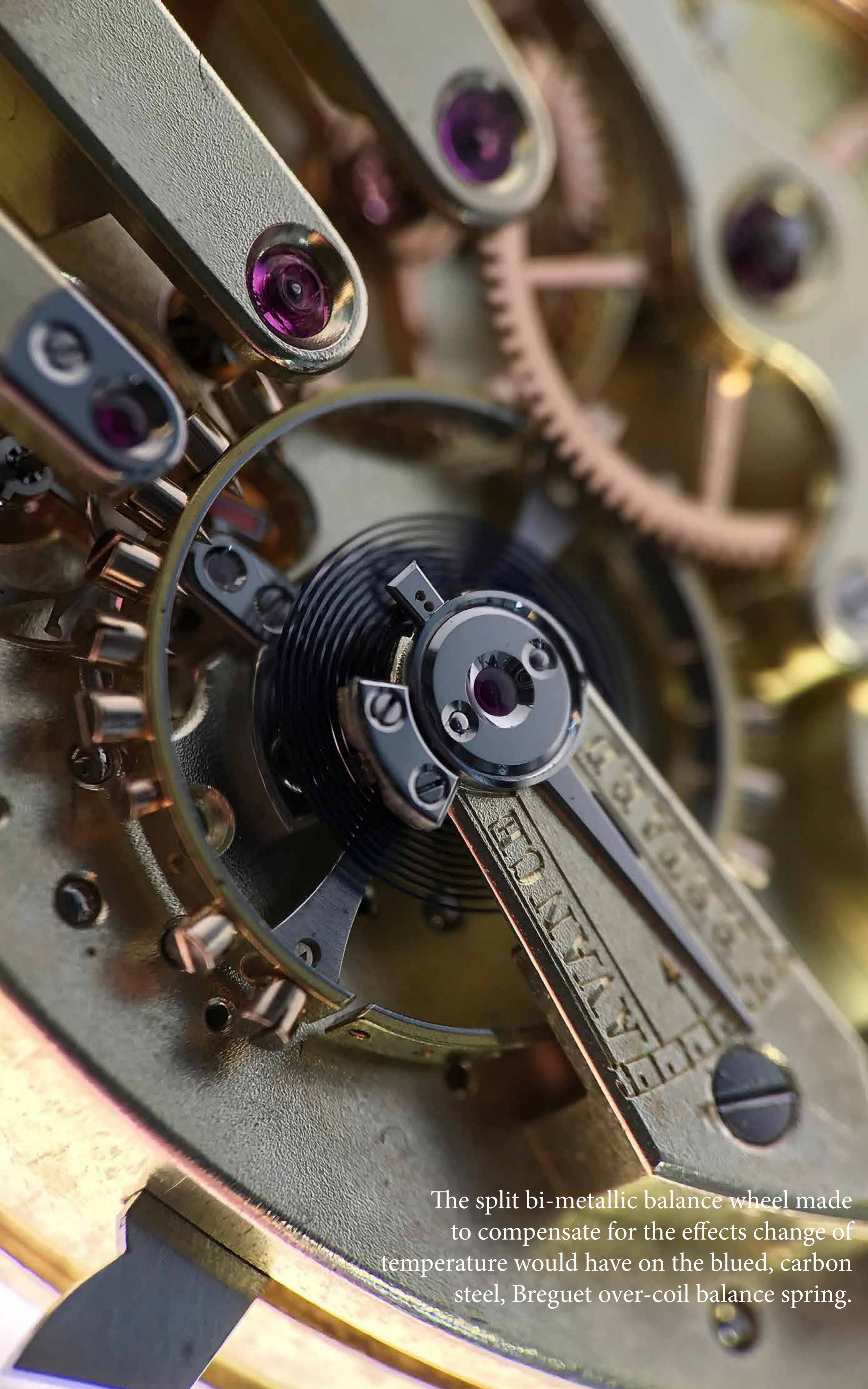
The hardened steel winding stem, which shows no wear. The polish, as with all of the components would have been manually executed.



The locking system for the winding stem to the left and the half round casing screw partially hidden by the case to the right.

The movement and stem removed from the case. The upper steel pin aligns with the pusher in the side of the case, which when pressed allows the winding crown to adjust the minute and hour hands instead of winding the mainspring.





The split bi-metallic balance wheel made to compensate for the effects change of temperature would have on the blued, carbon steel, Breguet over-coil balance spring.



The gold timing screws. At some point during the watches lifetime, timing washers were added between the screw and the balance rim to add weight and effectively slow the watch down. The small centre punch on the rim at the centre of the image was the position the balance spring stud would be aligned with to assure the balance was in beat.



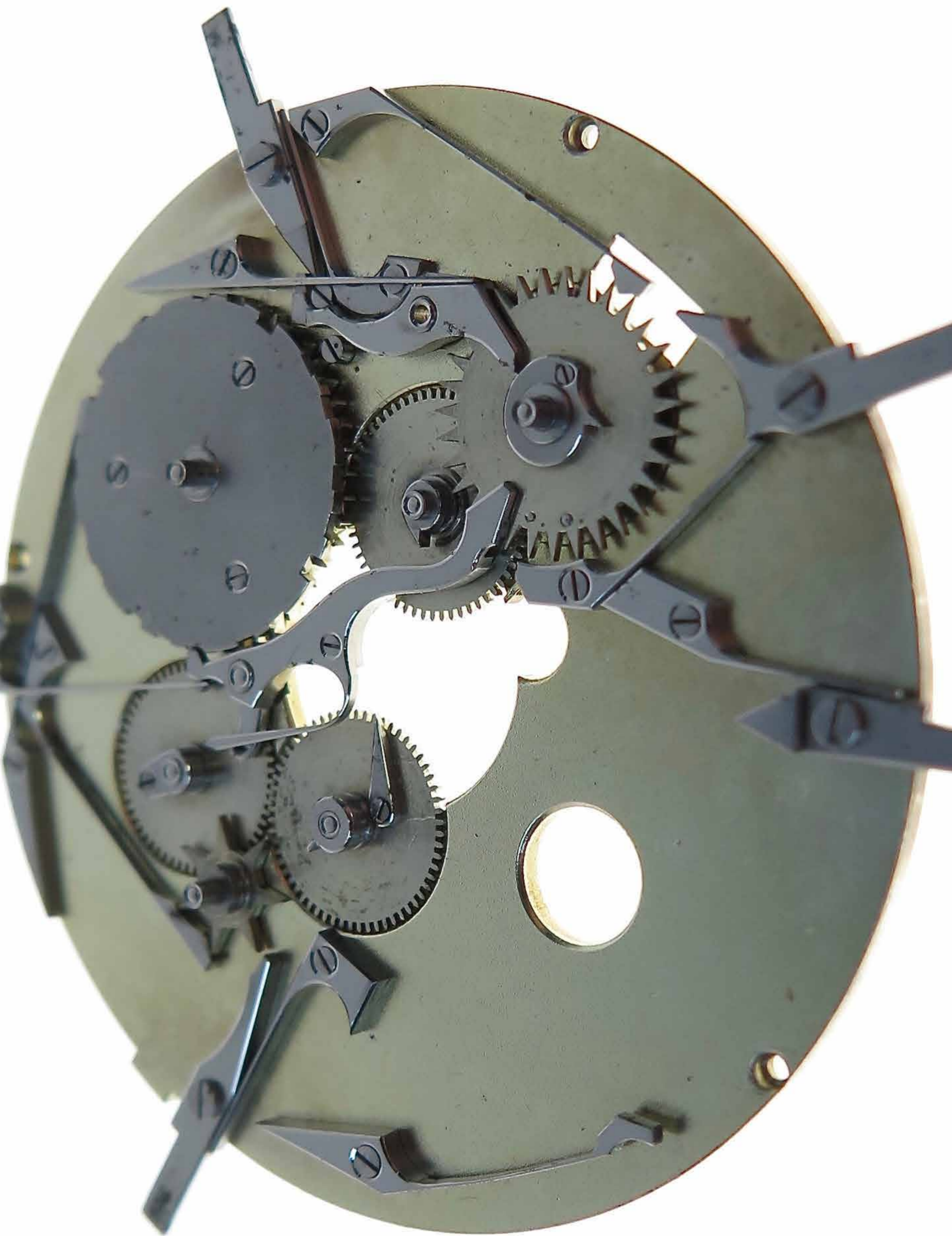
The regulation direction, hand engraved onto the balance cock.



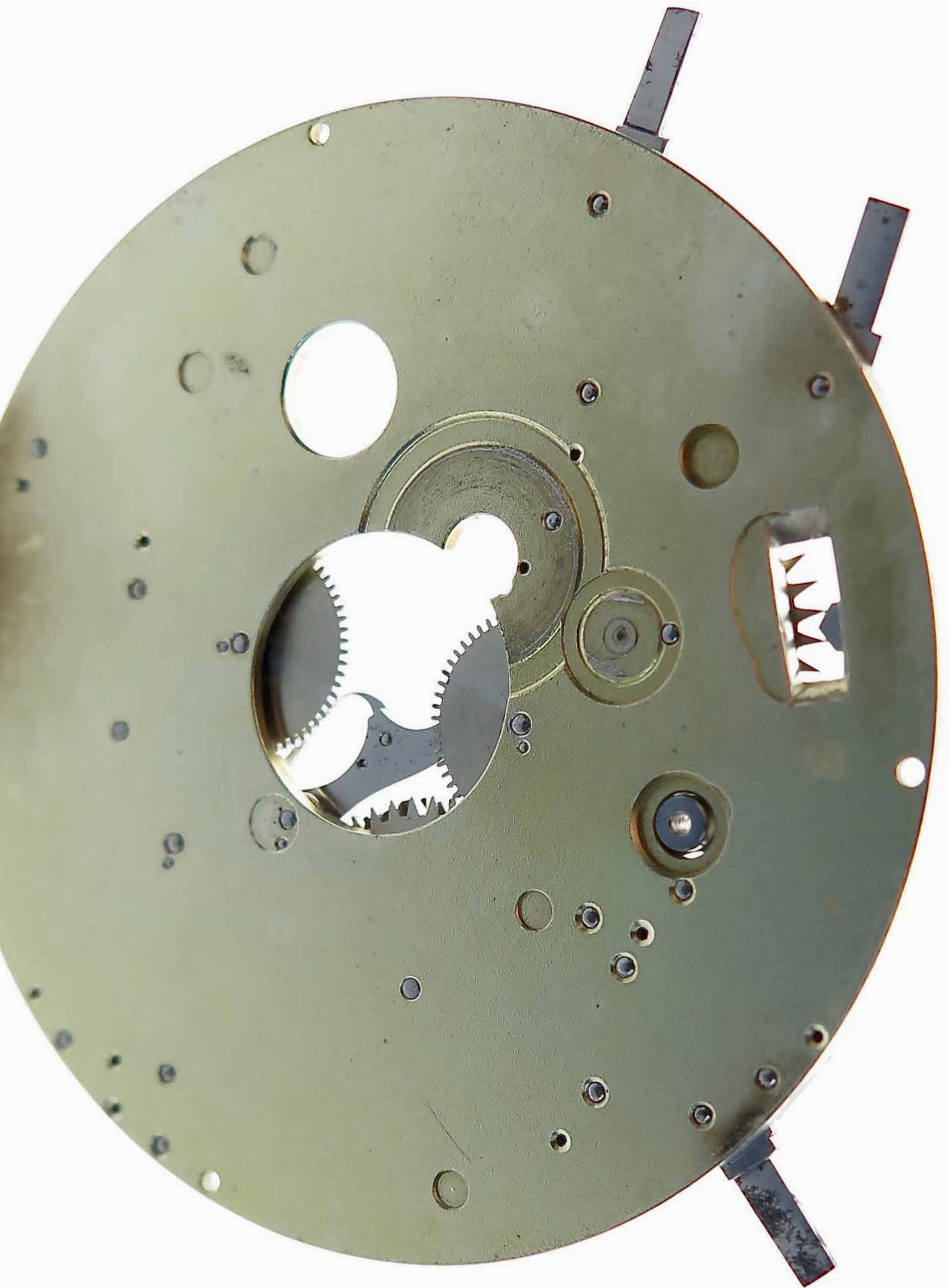
Wolf tooth profile winding gears.
Traditionally the strongest form of teeth,
used on high quality watches in the winding
train.



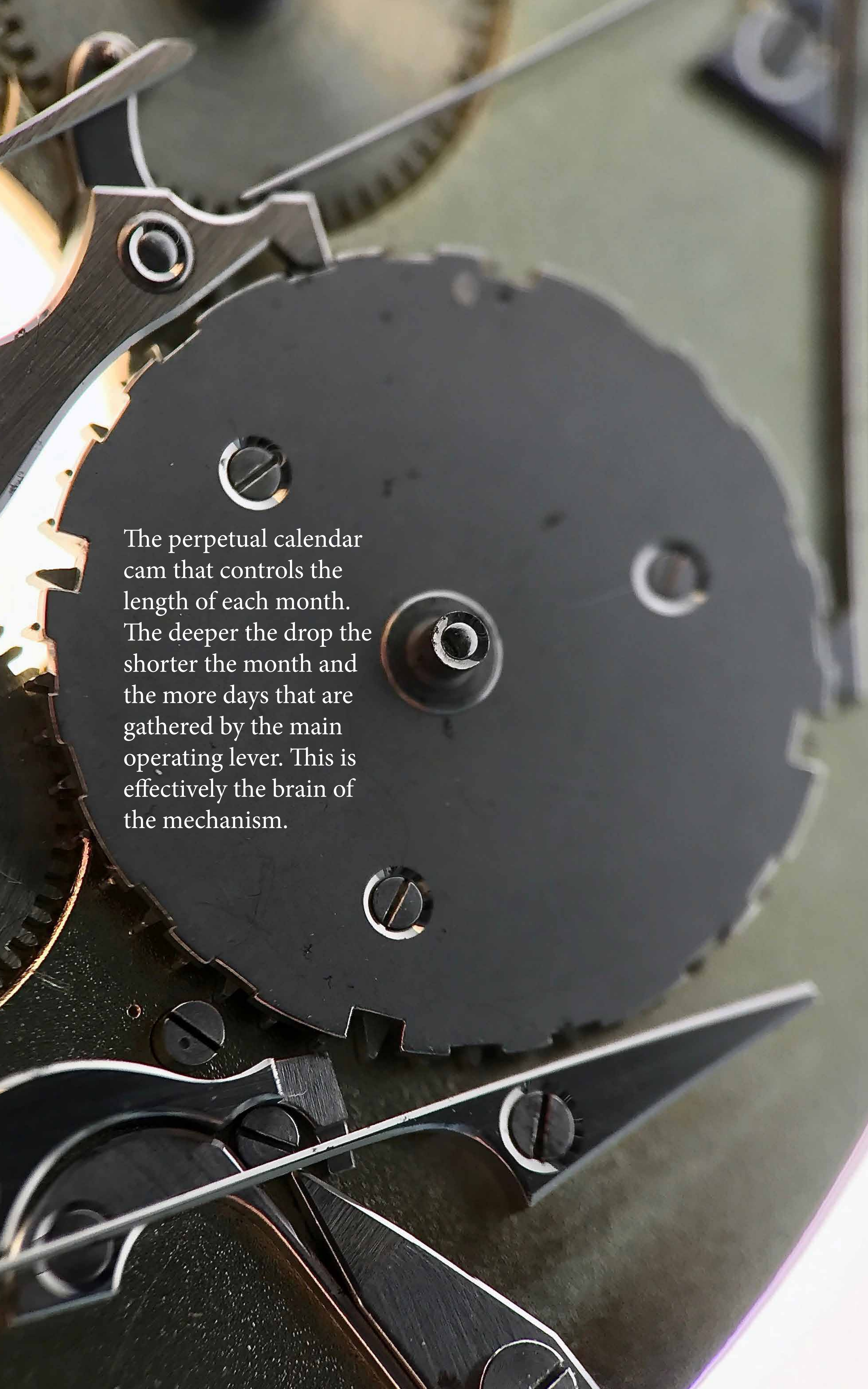
The individually marked and positioned casing screws. Ensuring that when the watch was re-assembled the screws were easily returned to their correct home.




The German silver calendar module removed from the calibre.



The underside of the calendar module.

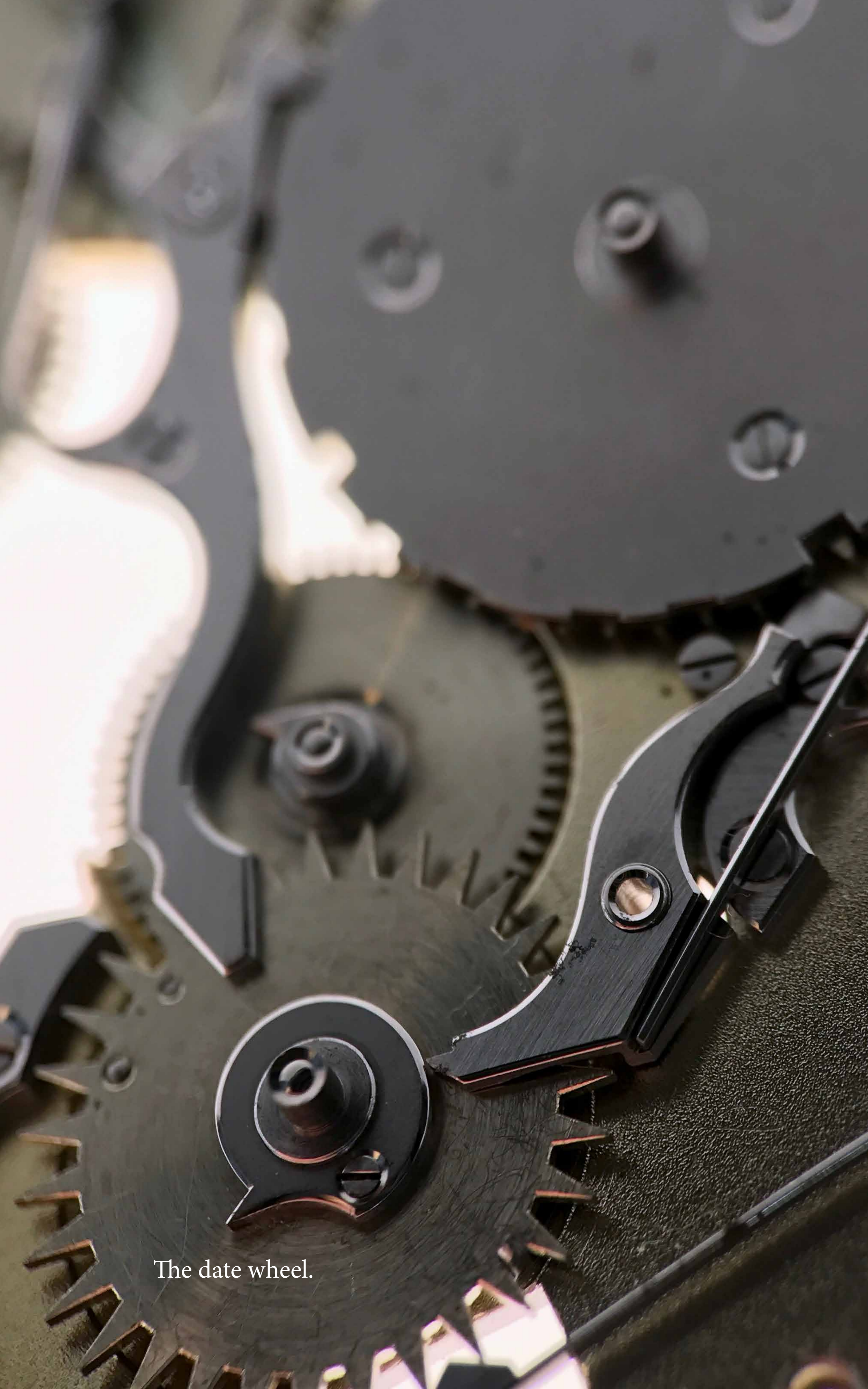
A detailed close-up photograph of a mechanical perpetual calendar cam. The cam is a dark, circular component with a complex, irregular profile. It features several circular holes, some of which are secured with screws. The cam is mounted on a metal plate, and its teeth are visible on the left side. The background shows other parts of the watch movement, including a gear and a metal plate with a circular hole.

The perpetual calendar cam that controls the length of each month. The deeper the drop the shorter the month and the more days that are gathered by the main operating lever. This is effectively the brain of the mechanism.

A detailed close-up photograph of a mechanical watch movement. The image shows several interlocking gears of various sizes, some with fine teeth and others with larger, more prominent ones. A prominent feature is a large, dark-colored gear with a complex, multi-toothed profile. The gears are mounted on metal plates, likely brass or steel, which are held together by screws. The lighting is dramatic, highlighting the metallic surfaces and the intricate geometry of the components. The background is dark and out of focus, emphasizing the mechanical parts.

The day, star wheel.

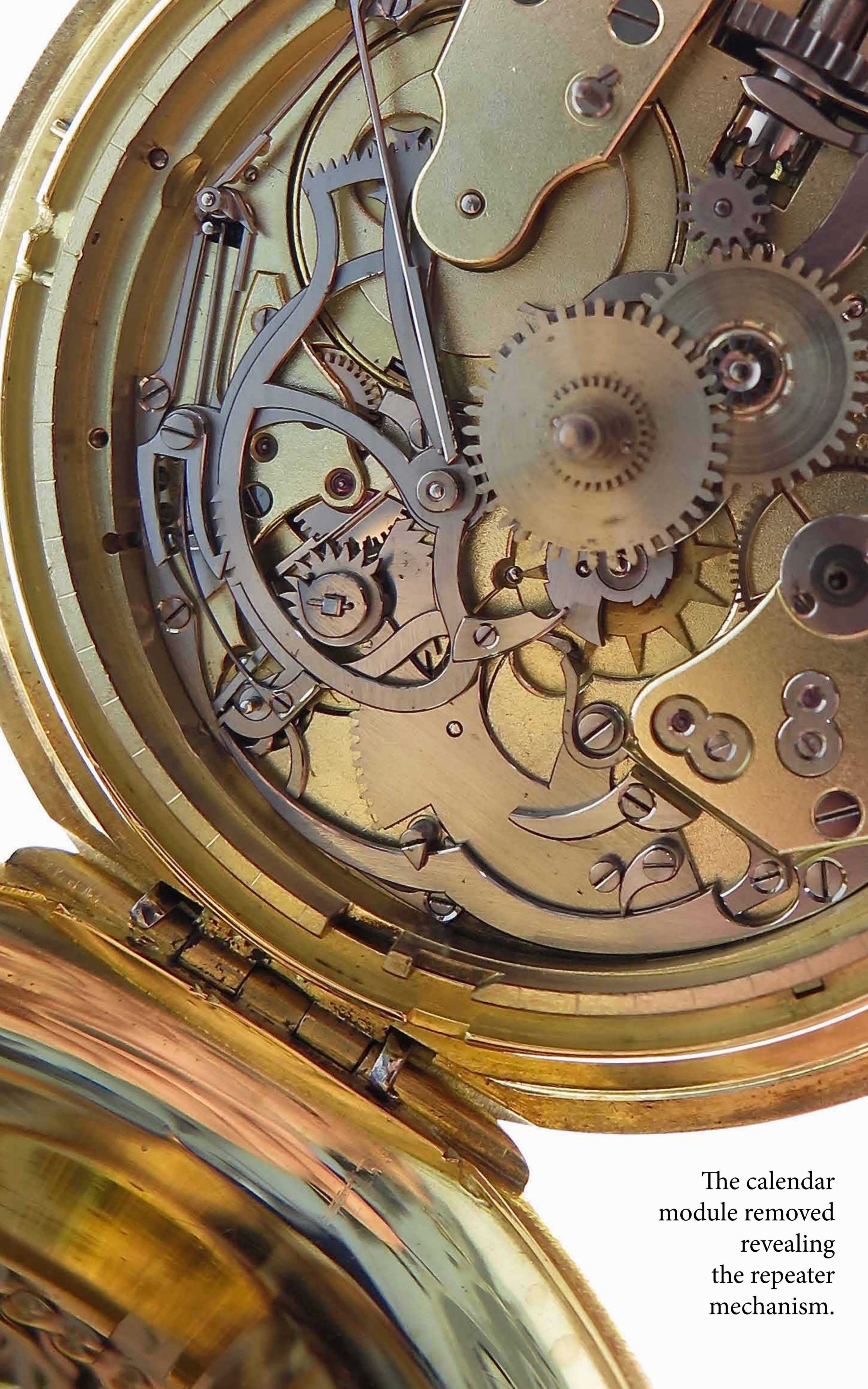
The main
operating
lever



The date wheel.

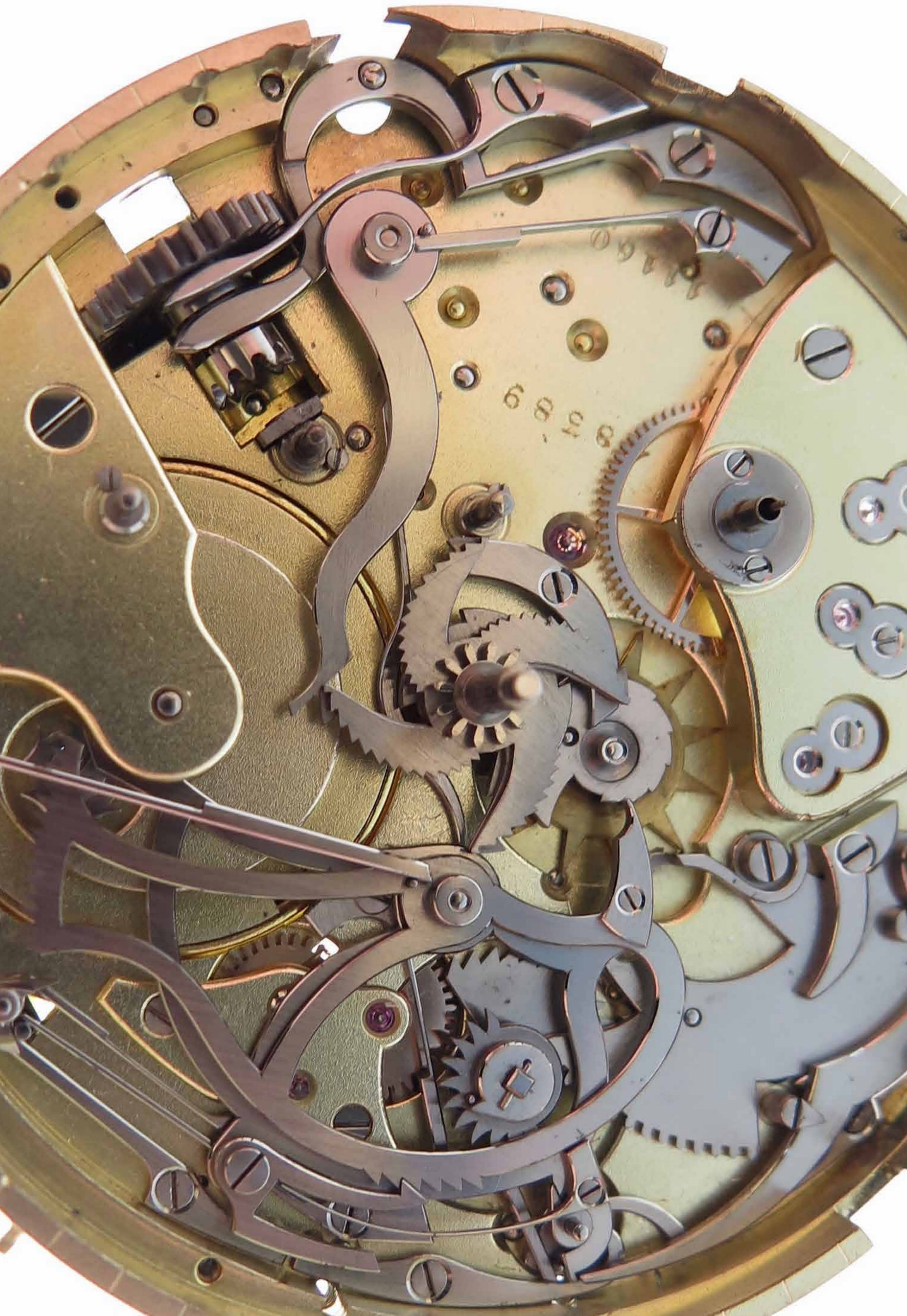



The operating wheel
for the days.



The calendar module removed revealing the repeater mechanism.

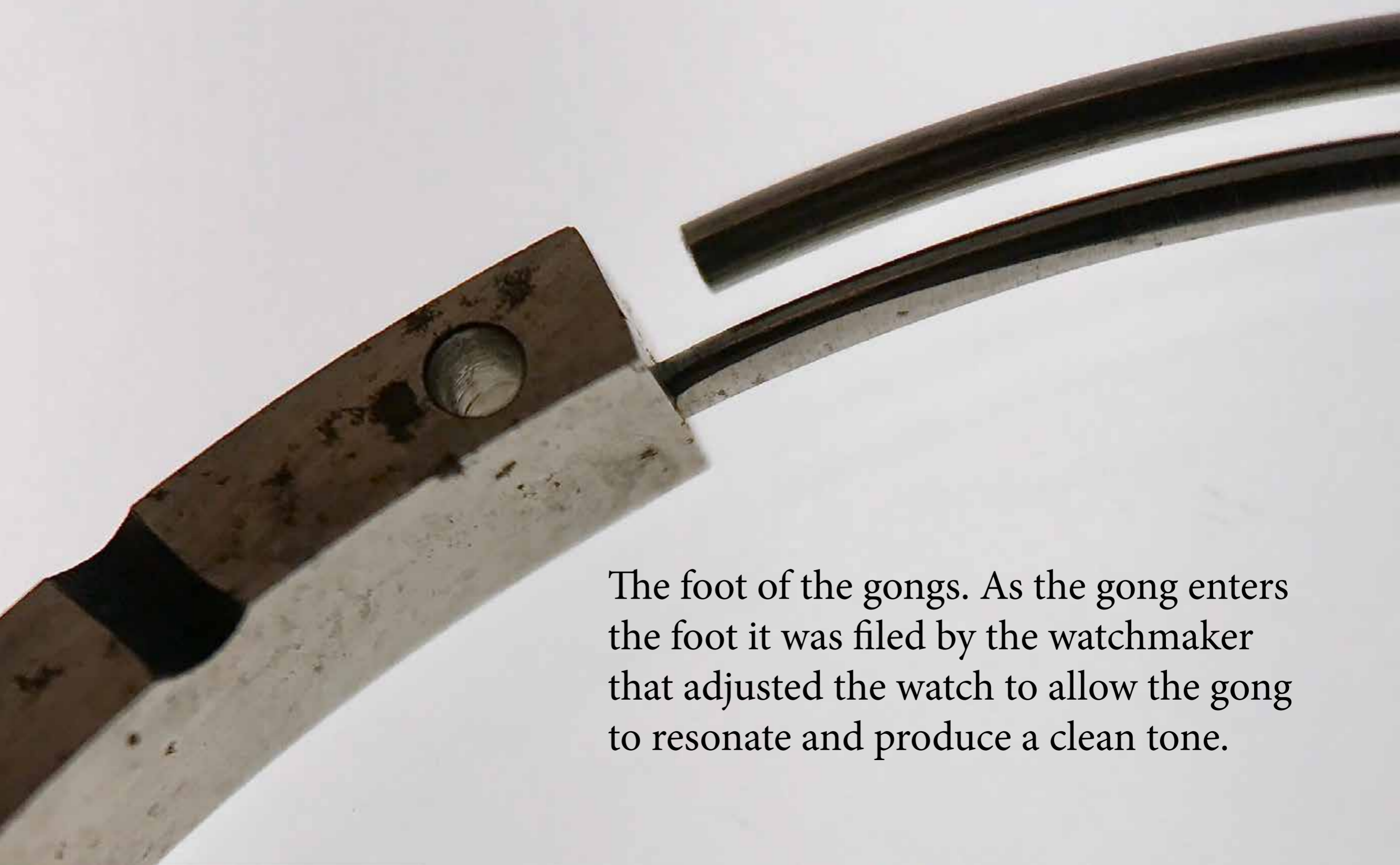
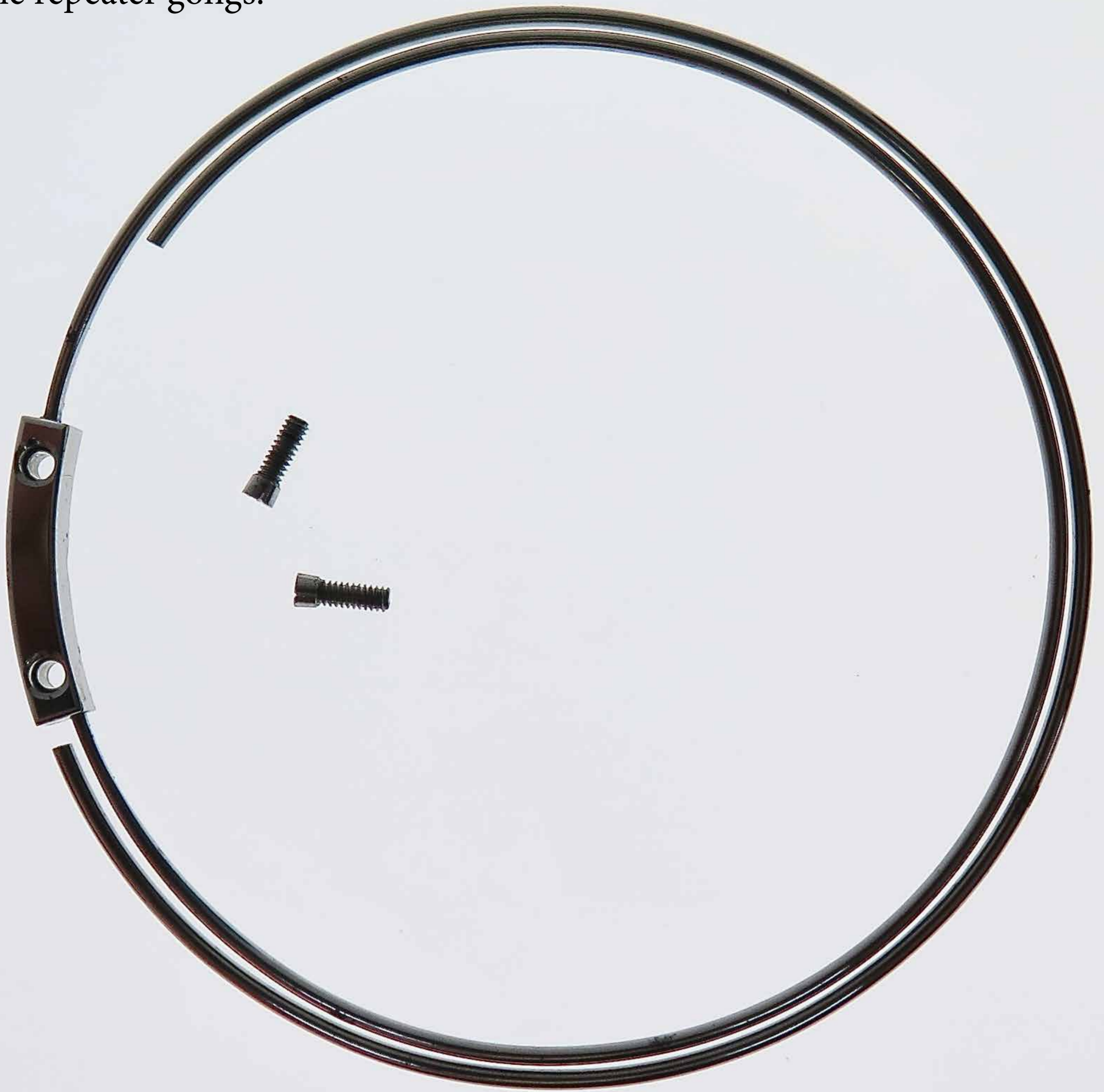
The movement removed from the case and the motion work dismantled, showing the wind mill shaped minute cam in the centre of the image which controls the number of minutes sounded when the minute rack lands on it.



A detailed close-up photograph of a watch's internal mechanism, specifically the repeater mechanism. The image shows several interlocking gears and components. A prominent feature is a gear with a square-shaped section on its circumference, which is the driving snail. This gear is mounted on a central axle. The surrounding components are made of polished metal, likely brass or steel, and show signs of precision engineering. The lighting is bright, highlighting the metallic surfaces and the intricate details of the gears.

The driving snail for the repeater mechanism which is driven by the square section of the repeater barrel arbour around which the repeater mainspring is attached.

The repeater gongs.



The foot of the gongs. As the gong enters the foot it was filed by the watchmaker that adjusted the watch to allow the gong to resonate and produce a clean tone.

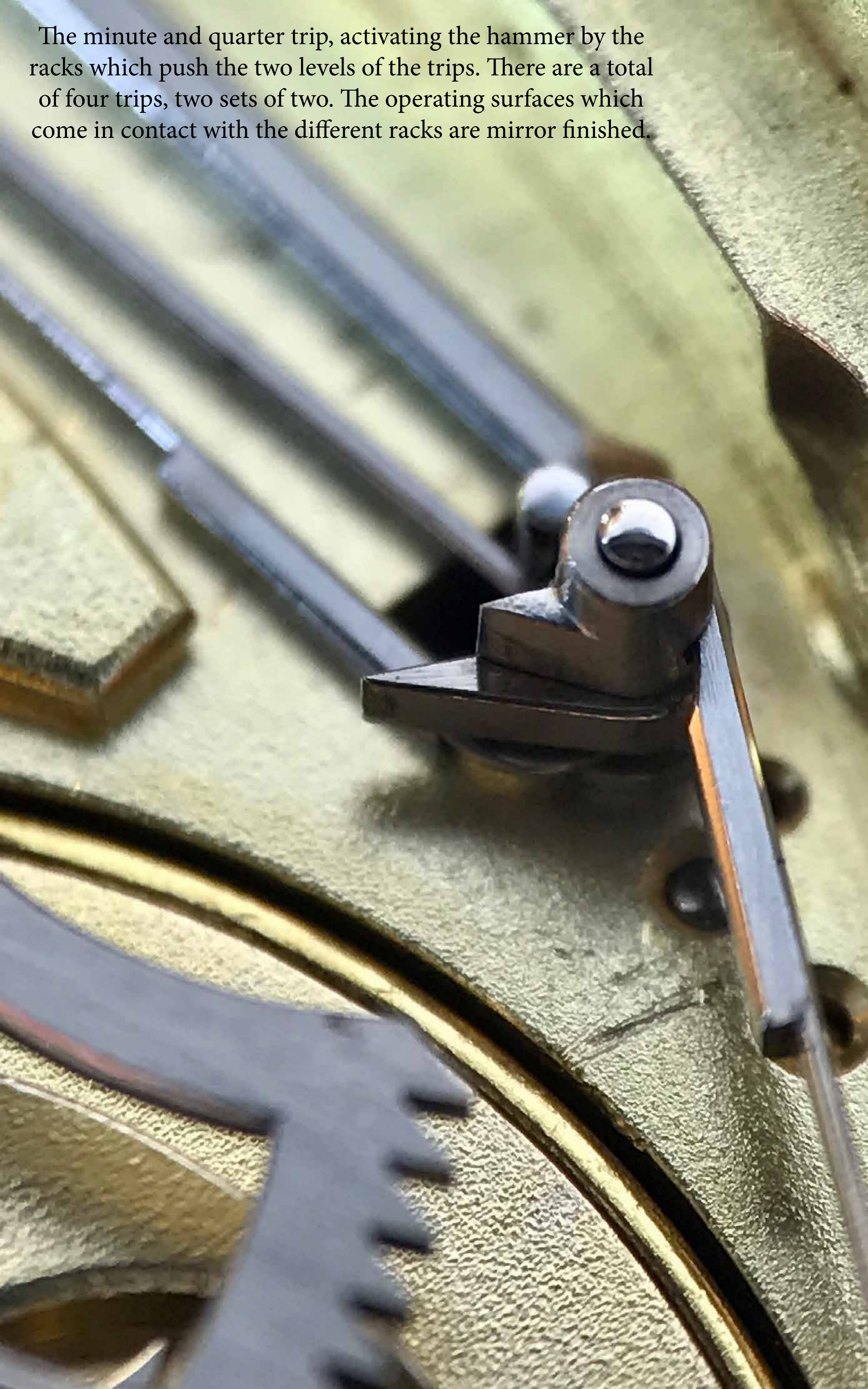


The minute cam and surprise piece. The surprise piece is the lower section of the minute cam assembly, here activated (and visible) preventing the minute rack from dropping into the cam on the hour so that no minutes are sounded.



The hour cam. Which controls the depth the operating lever can fall dictating the number of hours sounded.

The minute and quarter trip, activating the hammer by the racks which push the two levels of the trips. There are a total of four trips, two sets of two. The operating surfaces which come in contact with the different racks are mirror finished.

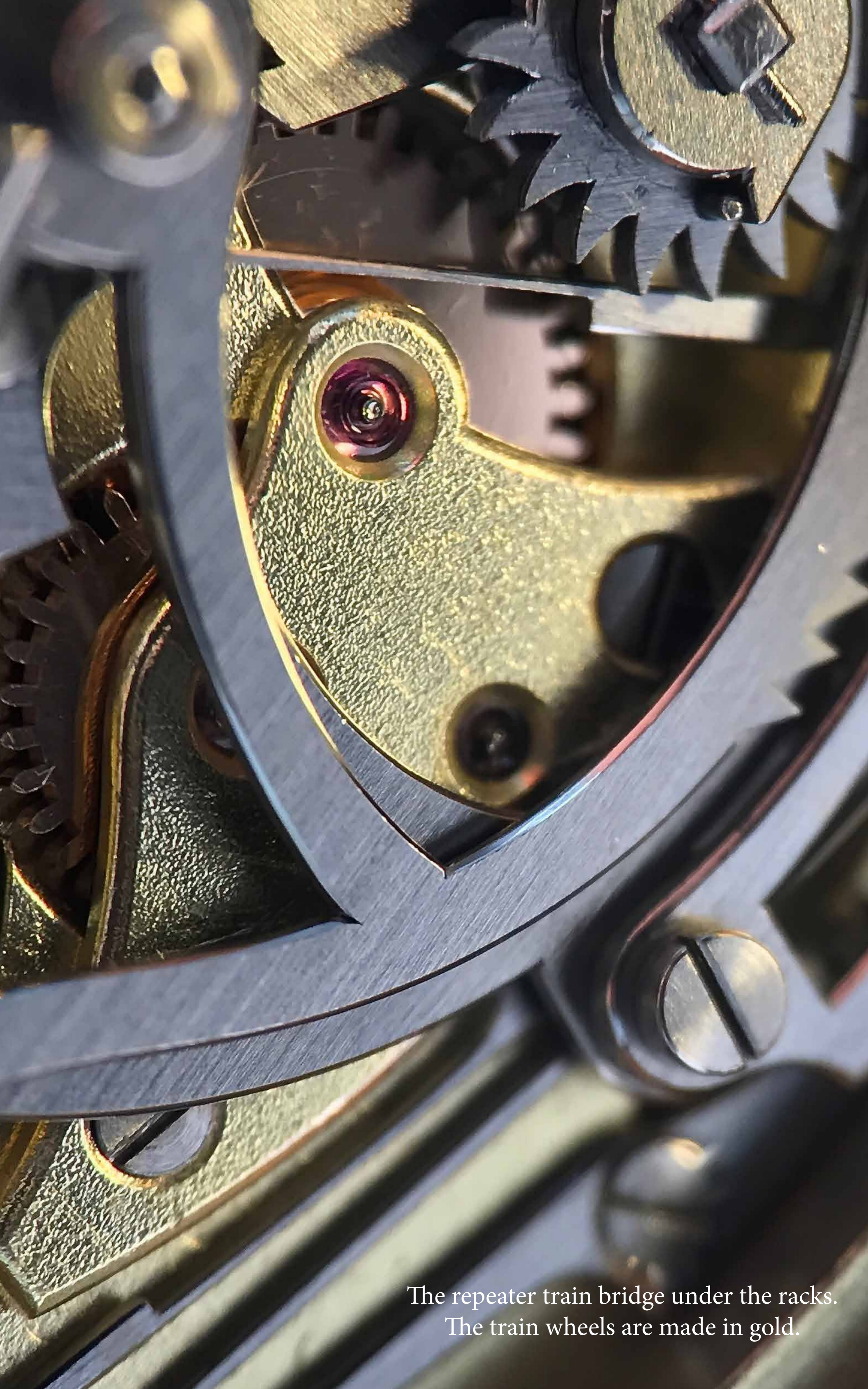


The hook which pulls the minute rack to sound the minutes.
Depending on which tooth the hook catches the rack dictates the
number of minutes sounded.



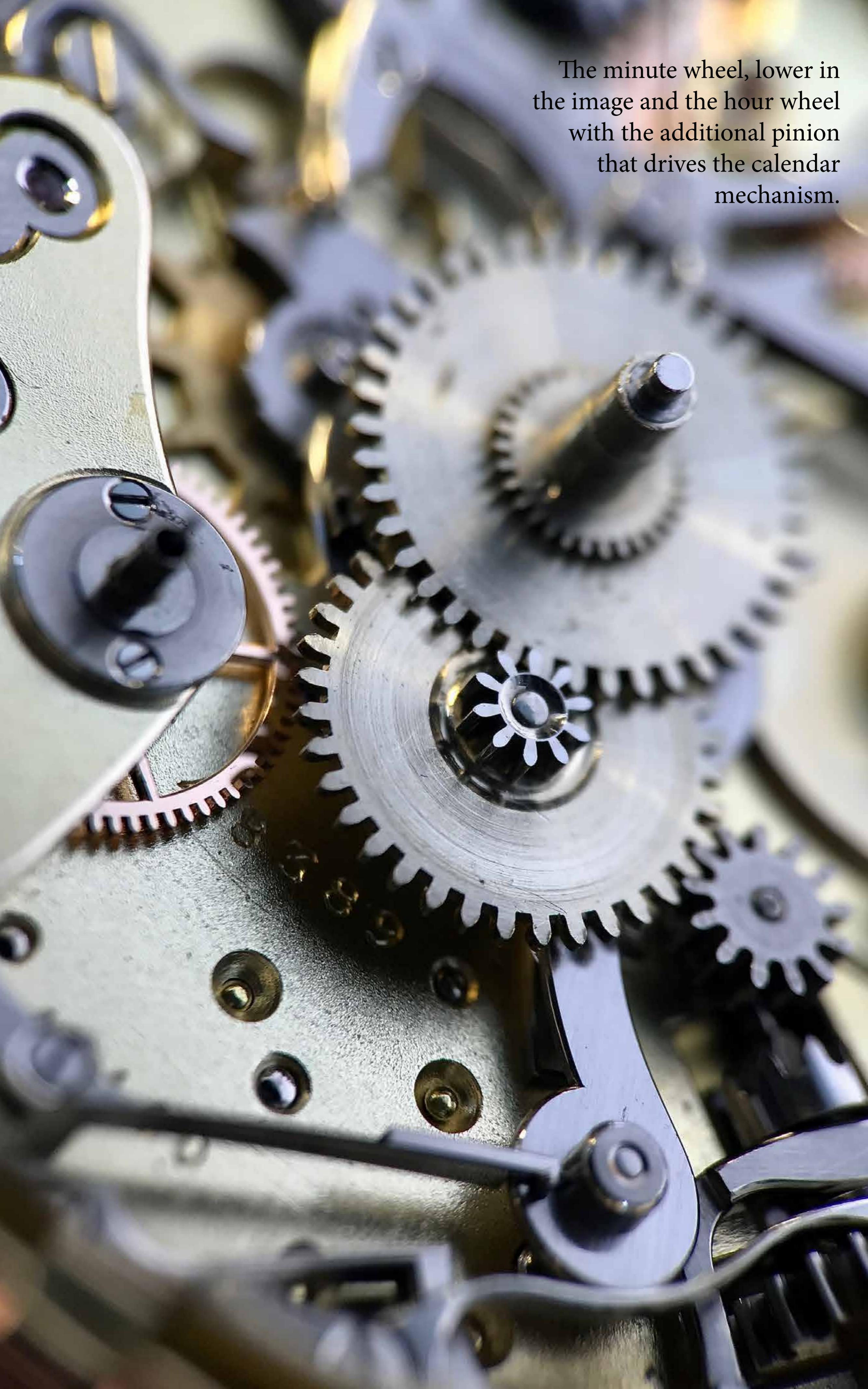


The minute rack. Designed by hand almost a century prior to the modern equivalents were re-designed using CAD.



The repeater train bridge under the racks.
The train wheels are made in gold.

The minute wheel, lower in the image and the hour wheel with the additional pinion that drives the calendar mechanism.



The two repeater hammers. In the centre the ratchet wheel covered by a bridge which hides the mainspring that powers the repeater when it is manually activated.





Case hinges which were made in 5 pieces, ie with 5 knuckles were more expensive to produce but would wear less over time. Compared to the 3 piece hinges which performed the same job but would develop 'play' during their lives as the surfaces would become worn.



Inside of the case are two massive springs, sitting on top of each other sandwiched in the case centre. The tips of these springs protrude through the case and push on the front cover by the hinge to activate its opening when the winding crown is pushed.





Summary

The design of the repeater is typical of many manufactured at this time as well as those produced today. The perpetual calendar although the predecessor in the concept of the majority of QP's ever made with the conventional month controlling cam. Is particularly elegantly executed, and simple. Also allowing for the date, days and month to be manually adjusted. The build quality was based on a standard expectation of longevity. With the exception of the oxidisation of some steel work caused by a case which was never water resistant, the movement itself does not show signs of natural wear. The scratches on the steelwork is a result of manual manipulation during the life of the watch. The only apparent wear is found on the gold case between surfaces that have been in constant contact such as the winding crown tube and bow.

It is a beautiful example of an early multiple complications made by one of the most respected watch-houses in Switzerland.



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